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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/616,558	07/10/2003	Jeffrey A. Sell	GP-302454	2802

7590 03/31/2006

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EXAMINER

FASTOVSKY, LEONID M

ART UNIT	PAPER NUMBER
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3742

DATE MAILED: 03/31/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary**Application No.**

10/616,558

Applicant(s)

SELL ET AL.

Examiner

Leonid M. Fastovsky

Art Unit

3742

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 December 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 and 17-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 and 17-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 2/23/05 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
 Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
 Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 17-19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

3. Claim 17 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: in line 7, it is not clear what specific part of the vehicle's temperature is measured.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-2 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lin et al (20030052016) (as evidenced by Furuya U.S. Patent No. 5,492,107) in view of Kurumiya et al (JP03009273).

Lin discloses a method for controlling the temperature of an oxygen sensor 22 in an internal combustion engine (page 1, [0001]), inherently comprising an ignition switch (in view of extrinsic evidence provided by ignition switch 17 of Furuya for detecting starting of the engine, col. 4, lines 1-11), thus detecting starting of the engine by the ignition switch, and comprising a heater 54, a shell 38, a signal capacitor 16, a positive electrode 46 and a negative electrode 48 (Fig. 3) and a heating control device 56 including a reference cell 38 and a signal buffering circuit 20 ([0017-0028]). However, he does not disclose measuring capacity between the electrode and the shell. Kurumiya discloses a heater "1c2", an oxygen sensor "S", a capacitance measuring circuit 14 and a comparator-microprocessor 15 (Abstract).

It would have been obvious to one having ordinary skill in the art to modify Lin's method of heating to include in his method a capacitance measuring circuit with a comparator as taught by Kurumiya in order to have better control over heating of the oxygen sensor.

6. Claims 3-5, 8 -14 and 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lin in view of Kurumiya and further in view of Takami.

Lin in view of Kurumiya discloses substantially the claimed invention including a temperature operating range between 500 and 800 degree C (page 1, [0003]), but does not disclose power levels and a heater rod.

Takami discloses a method for measuring oxygen levels in exhaust gas of a motor vehicle 10 comprising an oxygen sensor 30 (Fig. 2), a heater rod 33 coupled to the oxygen sensor, an outer electrode 36 surrounding the heater rod, a shell 12,31 surrounding the outer electrode, providing a first electrode 37 coupled to the outer

Art Unit: 3742

electrode 36 and a second electrode from the heater control circuit 25 is coupled to the shell 12, 31, and a microprocessor 20 connected to the oxygen sensor 30 and determines the heater rod temperature settings. Further, Takami teaches power levels (col. 8, lines 56-67, col. 9, lines 1-9) and a temperature range (col. 7, lines 55-65), but does not cite specifically first level of power, and second level of power. It would have been obvious to one having ordinary skill in the art to use Takami's invention in the method of heating of Lin in view of Kurumiya to include a heater rod and power levels as taught by Takami (col. 7, lines 55-65) and modify the method of Lin in view of Kurumiya to include temperature settings in response to measuring capacitances in order to better control heating of the oxygen sensor.

7. Claims 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lin in view of Kurumiya and further in view of Tomisawa.

Lin in view of Kurumiya discloses substantially the claimed invention including timing ([page 3, [0036]], but does not disclose specifically an elapsed time. Tomisawa teaches a method and diagnosis for an oxygen sensor 19 and timer T_m with an elapsed time in step 25 (page 5, [0077]). It would have been obvious to one having ordinary skill in the art to modify invention of Lin in view of Kurumiya to use an elapsed time in order to make a decision whether the value of the timer T_M has reached a predetermined value as taught by Tomisawa (page 5, [0077]).

Art Unit: 3742

Response to Arguments

8. Applicant's arguments with respect to claims 1-14 and 17- 20 have been considered, but are moot in view of the new ground(s) of rejection.

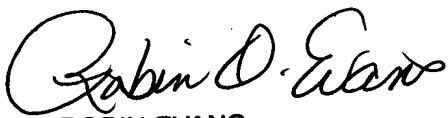
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leonid M Fastovsky whose telephone number is 571-272-4778. The examiner can normally be reached on M-Th. 8.00 am -6.00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robin Evans can be reached on 571-272-4777. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Leonid M Fastovsky
Examiner
Art Unit 3742

Imf

3/25/06

ROBIN EVANS
SUPERVISORY PATENT EXAMINER
3/29/06